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- (71) Applicants (for all designated States except US): KO-REA ATOMIC ENERGY RESEARCH INSTITUTE [KR/KR]; 150 Dukjin-dong Yusung-gu, Daejon 305-353 (KR). KOREA HYDRO & NUCLEAR POWER CO., LTD. [KR/KR]; 167 Samsung-dong Kangnam-gu, Seoul 137-791 (KR).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): SONG, Jin-Ho [KR/KR]; 108-701 Expo Apt., Jeonmin-dong, Yusung-gu, Daejon 305-761 (KR). KIM, Hwan-Yeol [KR/KR]; 119-105 Hanbit Apt., Eoeun-dong, Yusung-gu, Daejeon 305-755 (KR). MIN, Beong-Tae [KR/KR]; 103-1301 Hanbit Apt., Eoeun-dong, Yusung-gu, Daejeon 305-755 (KR). KIM, Hee-Dong [KR/KR]; 132-603 Hanbit Apt., Eoeun-dong, Yusung-gu, Daejeon 305-755 (KR).

- (74) Agent: C & S PATENT AND LAW OFFICE; C-2306 Daelim Acrotel, 467-6 Dogok-dong Kangnam-gu, Seoul 135-971 (KR).
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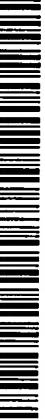
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(54) Title: PASSIVE COOLING AND ARRESTING DEVICE FOR THE MOLTEN CORE MATERIAL

(57) Abstract: Provided is an apparatus for passively cooling and retaining molten core material discharged from a damaged reactor vessel during a severe accident in the nuclear plant. The apparatus comprises: a molten core material retention tank to retain molten core material; a compressed gas tank storing high-pressure inert gas; a cooling water storage tank being installed higher than the molten core material retention tank; and a mixing means. The molten core material retention tank includes an outer retention vessel having at least one coolant hole, a porous protection vessel formed at an inside of the outer retention vessel, and a gravel layer formed between the outer retention vessel and the porous protection vessel. The apparatus can be installed in a reactor cavity without changing the compartment structure of a containment building, and makes it possible to prevent a steam explosion during the cooling process for the ultrahigh-temperature molten core material and to secure the reliability of the cooling process.



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